

**ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE
ERPD OPERATING
PROCEDURES MANUAL
VOL I: FIELD OPERATIONS**

**Manual No.: 5-21000-OPS-FO
Procedure No.: Table of Contents, Rev 85
Page: 1 of 3
Effective Date: 06/30/95
Organization: Environmental Restoration**

THIS IS ONE VOLUME OF A SIX VOLUME SET WHICH INCLUDES:

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VOLUME II: GROUNDWATER (GW)
VOLUME III: GEOTECHNICAL (GT)
VOLUME IV: SURFACE WATER (SW)
VOLUME V: ECOLOGY (EE)
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ADMIN RECORD

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FO.02	94-DMR-000563 - Cancellation of Transmittal of QA Records	3	04/15/94
FO.03	Field Decontamination Operations	2	05/12/92
94-DMR-001021	Section FO.03 Text Addition	2	05/26/94
94-DMR-001224	Equipment Decontamination Location Adjustment	2	07/15/94
95-DMR-000096	Quality Control Samples	2	02/16/95
4-S02-ENV-OPS-FO.04	Decontamination of Equipment at Decontamination Facilities	3	04/20/95
•4-H66-ER-OPS-FO.05	Handling of Purge and Development Water	3	06/30/95
FO.06	Handling of Personal Protective Equipment	2	05/12/92
FO.07	Handling of Decontamination Water and Wash Water	2	05/12/92
4-K56-ENV-OPS-FO.08	Monitoring and Containerizing Drilling Fluids and Cuttings	3	04/17/95
95-DMR-000331	Text Modification	3	05/22/95
FO.09	Handling of Residual Samples	2	05/12/92
4-K55-ENV-OPS-FO.10	Receiving, Marking, and Labeling Environmental Materials Containers	3	04/17/95
95-DMR-000330	Text Modification	3	05/22/95
FO.11	Field Communications	2	05/12/92

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PER R.B. HOFFMAN, CLASSIFICATION OFFICER
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FO.12	Decontamination Facility Operations	2	05/12/92
94-DMR-002244	Change of Decontamination Site for Field Equipment	2	12/22/94
FO.13	Containerization, Preserving, Handling and Shipping of Soil and Water Samples	2	05/12/92
93-DMR-000530	Section FO.13 Modification	2	11/04/93
93-DMR-000667	Section FO.13 Modification	2	11/20/93
94-DMR-000143	Composite Sampling Clarification	2	02/11/94
94-DMR-001670	New Statement of Work	2	09/15/94
4-B29-ER-OPS-FO.14	Field Data Management	3	09/09/94
95-DMR-000097	Revision of Form FO.14L	3	02/16/95
FO.15	Photoionization Detectors and Flame Ionization Detectors	2	05/12/92
95-DMR-000098	Change to Form FO.15A	2	02/16/95
FO.16	Field Radiological Measurements	2	05/12/92
95-DMR-000099	Editorial Correction to Form FO.16B	2	02/16/95
FO.18	Environmental Sample Radioactivity Content Screening	1	05/12/92
95-DMR-000100	Change to necessary forms for FO.18A & FO.18B	1	02/16/95
FO.19	Base Laboratory Work	2	05/12/92
4-F99-OPS-FO.23	Management of Soil and Sediment Investigative Derived Materials (IDM)	0	01/11/94
94-DMR-000137	Training Requirements Clarification	0	01/28/94
94-DMR-000148	Section FO.23 Modifications	0	02/09/94
94-DMR-001108	Buried Instrumentation and Existing Soil	0	06/14/94
94-DMR-001350	Various Text Additions and Deletions Regarding Drums and Use of SOP FO.29	0	08/16/94
4-B11-ER-OPS-FO.25	Shipment of Radioactive Materials Samples	0	12/01/93
4-BO1-ER-OPS-FO.27	Collection of Floor/Equipment Hot Water Rinsate Samples	0	07/26/93

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4-H46-ENV-OPS-FO.29	Disposition of Soil and Sediment Investigation-Derived Materials	0	06/24/94
94-DMR-001226	Allowance of Procedural Use for Waste Piles	0	07/15/94
94-DMR-001741	Permission of Use of Computer-Generated Forms and Other Minor Corrections	0	10/07/94
4-I11-ER-OPS-FO.30	Environmental Restoration Program Division Equipment Operation	0	10/07/94
FO.31-FO.39 have been incorporated into the OU1 Specific Operating Procedures Manual.			
FO.43 has been incorporated into the OU2 Specific Operating Procedures Manual.			
4-J39-ENV-OPS-FO.47	Disposal of Residual Accuvac™ Reagent Ampules	0	02/14/95

*All Limited Scope DMR's have been removed from the Table of Contents to more accurately reflect the contents of your manual. Work can still be performed to these DMR's if they haven't expired. If you have any questions, call Technical Publications at 966-8622.

Rocky Flats Environmental Technology Site

4-H66-ER-OPS-FO.05

REVISION 3

HANDLING PURGE AND DEVELOPMENT WATER

APPROVED BY: *Susan Stinger* / S.G. Stinger / 16-19-95
 Director, Environmental Restoration Program Division Print Name Date

Steph LUKER / R. S. LUKER / 16-19-95
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DOE RFFO/ER Submittal Required ☐ Yes ☐ No ☒ NAEnvironmental Protection Agency Review Required: ☐ Yes ☐ No ☒ NAResponsible Organization: Environmental Restoration Program Division Effective Date: 16/30/95

REVIEW BY THE FOLLOWING DISCIPLINES IS DOCUMENTED IN THE PROCEDURE HISTORY FILE:

Data Management and Reporting Services
 Environmental Operations Management
 Industrial Hygiene and Safety
 Radiological Engineering
 Sample Management

Group 1 Closures
 Industrial Area OU Closures / D&D Team
 OU 2 Closure
 OU 5, 6, and 7 Closures
 Solar Pond Projects

USE CATEGORY 2

ORC review not required

The following have been incorporated in this revision:

94-DMR-000048

This procedure supersedes procedure 5-21000-OPS-FO.05, Revision 2.

Periodic review frequency: 1 year from the effective date

LIST OF EFFECTIVE PAGES

<u>Pages</u>	<u>Effective Date</u>	<u>Change Number</u>
1-13	<u>06 / 30 / 95</u>	94-DMR-000048

TOTAL NUMBER OF PAGES: 13

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1. **PURPOSE**

This procedure describes the methods that are used for containing, moving, and emptying water generated during well sampling, development, and testing at the Rocky Flats Environmental Technology Site (Site).

This procedure implements the requirements of the Rocky Flats Interagency Agreement (IAG) among the Department of Energy, the Environmental Protection Agency, and the Colorado Department of Public Health and Environment.

2. **SCOPE**

This procedure applies to all Site Environmental Restoration Program Division (ERPD) employees and subcontractors who handle purge and development water.

This procedure addresses the following topics:

- Handling purge and development water
- Handling sediment-laden purge and development water
- Decontamination

This revision is a total rewrite and revision bars are omitted. This revision supersedes 5-21000-OPS-FO.5, Revision 2.

3. **DEFINITIONS**

Purge and Development Water. Excess water produced during groundwater withdrawals from an environmental monitoring well, including all excess water produced through sampling, well development, and aquifer testing.

Waste Generators. Field crews who produce purge and development water in the process of conducting field investigations or site characterizations.

4. **RESPONSIBILITIES**

4.1 **Environmental Operations Management (EOM)**

Accepts uncontaminated purge and development water at the Main Decontamination Facility.

Treats acceptable purge and development water.

Manages the storage of containers in the Resource Conservation and Recovery Act (RCRA) 90-day storage area.

4.2 EOM Field Operations Personnel

Maintains the quarterly updated listing of well types (uncontaminated, contaminated, and uncharacterized as defined by RCRA) in cooperation with the Site Manager.

4.3 Waste Operations Personnel

Ensures the long-term storage, treatment, and disposal of EOM nontreatable purge and development water following the removal of the containers from the RCRA 90-day storage area.

4.4 Radiological Engineering-approved Health and Safety Specialist

Conducts radiation screenings of equipment, samples, and personnel before they leave Radiologically Controlled Areas (RCAs) in accordance with 5-21000-OPS-FO.16, Field Radiological Measurements, and applicable Environmental Management Radiological Guidelines.

4.5 Site Manager

Coordinates the removal and transfer of all environmental materials from the project work area.

Ensures that uncontaminated and potentially contaminated purge and development water are segregated at the well in temporary holding tanks and transferred to the appropriate destinations in accordance with this procedure.

Reports immediately to the Site Contractor project manager or designee any damage incurred to a holding tank or drum.

Assigns personnel to conduct weekly inspections of all the containers issued to the subcontractor until the containers are relinquished to EOM.

4.6 Waste Generators (functional title)

Properly segregates and handles purge and development water in accordance with the list of well types.

Completes appropriate documentation.

5. TRAINING

Site Manager

- [1] Ensure that personnel who will be handling purge and development water have:
 - Received 40-hr Occupational Safety and Health Administration training and annual 8-hr refresher course, as needed.
 - Completed Rocky Flats Level II Radiological Worker Training if the employee will be a designated Radiological Worker, or will enter a posted RCA.
 - Completed General Employee Training.
 - Trained to this procedure and all other appropriate procedures.
- [2] Ensure that personnel using light or heavy equipment, scientific monitoring devices, or operating government vehicles have the appropriate training or licenses.
- [3] Ensure that personnel involved in waste generation are waste-generator trained.

6. MATERIALS AND EQUIPMENT

Site Manager

- [1] Ensure that the following materials and equipment are available for use onsite:
 - Purge and development water containers appropriately sized for the task
 - Hand-, electric-, or gas-powered pumps, and associated tubing
 - Organic vapor detector (OVD)
 - Field radiation monitor
 - Shovel (scoop type)
 - Splash protective and personal protective equipment as required by the site-specific Health and Safety Plan

Equipment used for purge and development water handling, such as mobile containers, are dedicated for the specific purge water types listed in Section 7, Instructions, to minimize the potential for cross-contamination between handling systems and contamination of clean water delivered to the decontamination facility.

7. INSTRUCTIONS

NOTE *The RCRA 90-day storage area provided by Environmental Operations Management is Unit EM-1890, located east of T900A, Operable Unit 2 - Field Treatability Unit (FTU).*

7.1 Handling Purge and Development Water

Personnel

- [1] Identify how purge and development water is segregated and dispositioned on a well-by-well basis.

The presence or absence of known hazardous constituents at each well is determined from previous sample analyses. The segregation and handling requirements of each type of well are described in Steps [7] through [9].

- [2] Maintain a quarterly updated list of the following monitoring well types, as defined by RCRA:
- Uncontaminated
 - Contaminated
 - Uncharacterized (new)

Site Manager

- [3] Assign personnel to conduct weekly inspections of all the containers or drums issued to the subcontractor until the containers are relinquished to the Site Contractor.

Weekly inspections of all the drums are performed by the subcontractor until the drum is returned to the Site Contractor. Drums are inspected using the forms contained in 4-K55-ENV-OPS-FO.10, Receiving, Marking, and Labeling Environmental Materials Containers. The weekly inspection is performed using Form FO.10B, Drum Field Log QA/QC Form. When the drum is filled, Form FO.10A, Drum Field Log Form, is filled out. After the drum is filled, it is stored in RCRA Unit EM-1890. The drum inspections are then performed by a qualified Site Contractor RCRA custodian. The inspection is performed in accordance with the Hazardous Waste Requirements Manual, D65-HWRM, Section 9, and ensures that container integrity is maintained and documented.

- [4] Report, as soon as possible, to the Site Contractor project manager or a designated Site Contractor representative any damage incurred to a holding container or drum.

Types of damage include:

- Holes
- Damage to the lid seal
- Any other problem that may compromise container integrity

7.1 Handling Purge and Development Water (continued)

Waste Generators

- [5] IF a container is found to be damaged,
THEN instruct field personnel to transfer the contents of damaged containers to an undamaged container.

- [6] Segregate the purge and development water generated during groundwater well monitoring and testing operations according to the presence or absence of known hazardous constituents at each well.

Groundwater wells are classified as follows:

- Uncontaminated - Recent groundwater sampling has generated at least one quarter of analytical data indicating that hazardous constituents, as defined by RCRA, are not present in groundwater collected from that well.
- Contaminated - Recent groundwater sampling has generated analytical data indicating the presence of hazardous constituents, as defined by RCRA, in groundwater collected from that well.
- Uncharacterized - Typically in new or previously unsampled monitoring wells there is a lack of adequate analytical data to characterize these wells.

- [7] IF the monitoring well is classified as uncontaminated,
THEN:

- [A] Place the purge and development water generated from that well into truck-mounted containers marked *clean purge water only*.
- [B] Deliver the containers that contain the purge and development water to an EOM-operated decontamination facility.
- [C] Transfer the purge and development water to the environmental liquids holding tanks at the Site decontamination facility for final disposition.

- [8] IF the monitoring well is classified as contaminated,
THEN:

- [A] Place the purge and development water generated from that well into truck- or trailer-mounted containers marked *contaminated purge water only*.
- [B] WHEN the containers become full,
THEN sample and manage the purge and development water for hazardous constituents, indicating fast turn-around analyses, in accordance with:
- 5-21000-OPS-GW.6, Groundwater Sampling.
 - 4-B35-ER-OPS-FO.13, Containerization, Preserving, Handling, and Shipping of Samples.
 - 4-B29-ER-OPS-FO.14, Field Data Management.

7.1 Handling Purge and Development Water (continued)

Waste Generators (continued)

NOTE *Final disposition of the purge and development water is determined based on the receipt and review of analytical results by EOM.*

- [C] **WHEN** the analytical results are returned from the analytical laboratory,
THEN submit the results of the sample analyses to EOM for approval to treat the water at a Site water treatment facility.

EOM

- [D] Determine the final disposition of the purge and development water based on the review of analytical results.

Waste Generators

- [E] **IF** the purge and development water is accepted for treatment by EOM,
THEN deliver the purge water to a Site Contractor-designated Rocky Flats water treatment facility.
- [F] **IF** a treatment facility is unavailable,
OR the water is deemed unacceptable for treatment,
THEN off-load the contaminated purge water into 55-gal drums or an approved storage vessel at a Site Contractor-designated RCRA 90-day storage area.
- [9] **IF** the monitoring well is classified as uncharacterized,
THEN:
- [A] Place the purge and development water generated from that well into truck- or trailer-mounted containers marked *uncharacterized purge water only*.
- [B] **WHEN** the containers become full,
THEN sample and manage the purge and development water for hazardous constituents, indicating fast turn-around analyses, in accordance with:
- 5-21000-OPS-GW.6.
 - 4-B35-ER-OPS-FO.13.
 - 4-B29-ER-OPS-FO.14.
- [C] **WHEN** the analytical results are returned from the analytical laboratory,
THEN submit the results of the sample analyses to EOM for approval to treat the water at a Site water treatment facility.

EOM

- [D] Determine the final disposition of the purge and development water based on the review of analytical results.

7.1 Handling of Purge and Development Water (continued)

Waste Generators

- [E] IF the purge and development water is determined to be uncontaminated,
THEN off-load the container that contains the purge and development water at
the Site decontamination facility as described in Step [7].
- [F] IF the purge and development water is accepted for treatment by EOM,
THEN deliver the purge water to a Site Contractor-designated water treatment
facility for treatment by EOM.
- [G] IF a treatment facility is unavailable,
OR the water is deemed unacceptable for treatment,
THEN off-load the contaminated purge water into 55-gal drums or an
approved storage vessel at a Site Contractor-designated RCRA 90-day storage
area.
- [10] IF it becomes necessary to temporarily store the purge and development water from
contaminated or uncharacterized wells,
THEN:
 - [A] Place the purge and development water in 55-gal, bung-type, black and white
drums or appropriately sized containers.
 - [B] Mark purge and development water containers in RCRA 90-day storage areas
NONPOTABLE PENDING ANALYSIS in accordance with 4-K55-ENV-OPS-FO.10.
- [11] Prepare and sign a Waste/Residue Traveler, RF-47386, for each drum to be maintained
at the RCRA 90-day storage area.
- [12] Transfer any contaminated purge and development water containers from the RCRA
90-day storage area to a Site Contractor-designated destination by the Site Contractor
or subcontractor personnel in accordance with 4-I48-ENV-OPS-FO.12,
Decontamination Facility Operations.

Waste Operations Personnel

- [13] Maintain responsibility for the long-term storage, treatment, and disposal of EOM
nontreatable purge and development water following removal of the containers from
the RCRA 90-day storage area.

7.2 Handling Sediment-laden Purge and Development Water

Waste Generators

- [1] IF the amount of sludge or sediment in the purge and development water from contaminated or uncharacterized wells is substantial,
THEN:

- [A] Decant the purge and development water from one drum (or container) to another or from a trough to a drum or transfer container before moving the container.
- [B] Drum the residual sediment as solid environmental materials in accordance with 4-K56-ENV-OPS-FO.8, Monitoring and Containerizing Drilling Fluids and Cuttings.
- [C] Transport the residual sediment drums to the appropriate RCRA 90-day storage area.

EOM Field Operations Personnel

- [D] Inspect the residual sediment drums received at the RCRA 90-day storage area.
- [E] Accept the residual sediment drums.
- [F] Complete all associated paperwork.

Characterization of the drums is based on analytical results of the samples that correspond to the cuttings associated with the drill site and provided to EOM by the waste generator for final handling.

Waste Generators

- [G] Transfer the custody of the residual sediment drums to EOM personnel.
- [2] IF the amount of sludge or sediment in the purge and development water is NOT substantial,
THEN handle the residual sediments as part of normal drum and transfer-container decontamination operations in accordance with Section 7.3, Decontamination.

7.3 Decontamination

Waste Generators

- [1] IF the purge and development water is derived from uncontaminated wells,
THEN power spray and rinse the equipment used for handling this purge and development water in the field in accordance with 4-S01-ENV-OPS-FO.3, Field Decontamination.
- [2] IF the purge and development water is derived from contaminated wells,
THEN decontaminate all equipment used for handling purge and development water from contaminated or uncharacterized wells in accordance with 4-S01-ENV-OPS-FO.3.
- [3] Decontaminate the liquid containers between each use.
- [4] IF drums are used,
THEN document pertinent information regarding the use of drums on Form FO.10A, Drum Field Log.
- [5] Dispose of decontamination and wash water in accordance with 5-21000-OPS-FO.7, Handling of Decontamination Water and Wash Water.

8. RECORDS

Documentation of drum inspections is done on Form FO.10B. Form FO.10A is kept on each drum used to move environmental liquids. Entries made on Form FO.10A may be supported with entries in a field logbook. The preparation of a Waste/Residue Traveler, RF-47386, is also required for each drum.

Management of all records is consistent with 1-77000-RM-001, Records Management Guidance for Records Sources.

Site Manager

- [1] Ensure that the original and one copy, as required, of the following quality assurance (QA) records are transmitted to the ERPD Project File Center (PFC) in accordance with 2-G18-ER-ADM-17.01, Records Capture and Transmittal:
 - Field logbook
 - Form FO.10A
 - Form FO.10B
 - Waste/Residue Traveler, RF-47386

Submission of record copies to the ERPD PFC satisfies Administrative Record requirements in accordance with 2-S65-ER-ADM-17.02, Administrative Record Document Identification and Transmittal.

There are no non-QA records generated by this procedure.

9. REFERENCES

Rocky Flats Interagency Agreement, (IAG), January 22, 1991

1-77000-RM-001, Records Management Guidance for Records Sources

2-G18-ER-ADM-17.01, Records Capture and Transmittal

2-S65-ER-ADM-17.02, Administrative Record Document Identification and Transmittal

4-B29-ER-OPS-FO.14, Field Data Management

4-B35-ER-OPS-FO.13, Containerization, Preserving, Handling, and Shipping of Samples

4-S01-ENV-OPS-FO.03, Field Decontamination

5-21000-OPS-FO.7, Handling of Decontamination Water and Wash Water

4-K56-ENV-OPS-FO.08, Monitoring and Containerizing Drilling Fluids and Cuttings

4-K55-ENV-OPS-FO.10, Receiving, Marking, and Labeling Environmental Materials Containers

4-I48-ENV-OPS-FO.12, Decontamination Facility Operations

5-21000-OPS-FO.16, Field Radiological Measurements

5-21000-OPS-GW.6, Groundwater Sampling